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inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a highly doped semi-conductor, or a superconductor, or a combination thereof.

2. (Amended) The sensor according to claim 1, wherein the compositionally different conductive material is carbon black.

4. (Amended) A sensor array comprising:  
a plurality of sensors[; and  
a measuring apparatus, wherein the sensors are in communication with the measuring apparatus], wherein at least one sensor [comprising] comprises:  
regions of a conductive organic material and regions of a conductive material compositionally different than the conductive organic material, wherein the sensor provides an electrical path through the regions of the conductive organic material and the regions of the compositionally different conductive material,  
the sensors constructed to provide a first response when contacted with a first chemical analyte, and a second different response when contacted with a second different chemical analyte.

7. (Amended) The sensor array according to claim 4, wherein the compositionally different conductive material is an inorganic conductor.

12. (Amended) The sensor array [of] according to claim 11, wherein the resistance of the sensor is  $R_m$  at temperature  $T_m$  when contacted with a chemical analyte, where  $m$  is an integer greater than 1.

19. (Amended) [An array of sensors] The sensor array according to claim 4, wherein the

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a<sup>5</sup> compositionally different conductive material is an organic conductor.

a<sup>6</sup> 22. (Amended) The sensor array according to claim 4, wherein the compositionally different conductive material is a particle.

23. (Amended) The sensor array according to claim 4, wherein the compositionally different conductive material of each [or]of the sensors comprises a conductive organic material.

24. (Amended) The sensor array according to claim 4, wherein the regions of conductive organic material and the [dissimilar]compositionally different conductive material are fabricated from a member selected from the group consisting of a colloid, a suspension or a dispersion.

25. (Amended) The sensor array according to claim 4, wherein the regions of conductive organic material and compositionally different conductive material are fabricated from a colloid.

a<sup>7</sup> 29. (Amended) The sensor array system according to claim 26, wherein the compositionally different conductive material is an inorganic conductor.

a<sup>8</sup> 41. (Amended) The sensor array system according to claim 26, wherein the compositionally different conductive material is an organic conductor.

a<sup>9</sup> 44. (Amended) The sensor array system according to claim 26, wherein the compositionally different conductive material is a particle.

a<sup>10</sup> 47. (Amended) The sensor array system according to claim 26, wherein the region of conductive organic material and compositionally different conductive material is fabricated from a

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member selected from the group consisting of a colloid, a suspension or a dispersion.

a<sup>11</sup> 48. (Amended) The sensor array system according to claim 26, wherein the region of conductive organic material and compositionally different conductive material is fabricated from a colloid.

a<sup>12</sup> 53. (Amended) The [sensor array] method according to claim 50, wherein the compositionally different conductive material is an inorganic conductor.

a<sup>13</sup> 65. (Amended) [An]The method according to claim 50, wherein the compositionally different conductive material is an organic conductor.

a<sup>14</sup> 68. (Amended) The method according to claim 50, wherein the compositionally different conductive material is a particle.

a<sup>15</sup> 70. (Amended) The method according to claim 50, wherein the region of conductive organic material and compositionally different conductive material is fabricated from a member selected from the group consisting of a colloid, a suspension or a dispersion.

71. (Amended) The method according to claim 50, wherein the region of conductive organic material and compositionally different conductive material is fabricated from a colloid.

72. (Amended) A method for detecting a microorganism, the method comprising:  
exposing an analyte associated with the microorganism to a sensor array comprising a plurality of sensors electrically connected to a[n] measuring apparatus, wherein each of the sensors comprises regions of conducting organic material and regions of conducting material

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compositionally different than the conducting organic material; and  
measuring a response through the regions of conducting organic material and the  
compositionally [dissimilar]different conducting material, thereby detecting the microorganism.

73. (Amended) A system for identifying a microorganism, the system comprising:  
a sensor array comprising a plurality of sensors connected to a[n] measuring apparatus,  
wherein each of the sensors comprises regions of conducting organic material and regions of  
conducting material compositionally different than the conducting organic material; and  
a computer comprising a resident algorithm;  
the measuring apparatus capable of detecting a response from the each sensor and the  
computer capable of assembling the responses into a response profile for microorganism  
identification.

77. (Amended) A system for detecting an analyte in a sample [to be tested], comprising:  
a substrate having a plurality of sensors that incorporates a conductive material and a  
conductive organic material and that provides a response that varies according to the presence of  
an analyte in contact with it;  
a detector operatively associated with the sensor, for measuring the response of  
the sensor;  
a sample delivery unit for delivering the sample to be tested to the sensor; and  
an information storage and processing device configured to store an ideal response  
for a predetermined analyte and to compare the response of the sensor with the stored ideal  
response, to detect the presence of the analyte in the sample being tested.

85. (Amended) A method for detecting a disease in a subject, the method comprising,  
contacting an array of sensors with a biological sample suspected of containing an analyte

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indicative of the disease, wherein each sensor comprises regions of a conductive organic material and a conductive material compositionally different [that] than the conductive organic material; and

detecting the analyte wherein the presence of the analyte is indicative of the disease.

Please add the following new claims:

91. A sensor, comprising:

regions of a polyaniline or an emeraldine salt of polyaniline and a conductive material compositionally different than the polyaniline or emeraldine salt of polyaniline, wherein the sensor provides an electrical path through the regions of polyaniline or emeraldine salt of polyaniline and the conductive material compositionally different than the polyaniline or emeraldine salt of polyaniline.

92. The sensor of claim 91, wherein the compositionally different conductive material is selected from the group consisting of an organic conductor, an organic complex, an inorganic conductor, and a mixed inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a highly doped semi-conductor, an oxidized metal or a superconductor, or a combination thereof.

93. A sensor array comprising:

a plurality of sensors; and  
a measuring apparatus, wherein the sensors are in communication with the measuring apparatus,

at least one sensor comprising:

regions of a conductive organic material and regions of a conductive material compositionally different than the conductive organic material, wherein the sensor provides an

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electrical path through the regions of the conductive organic material and the regions of the compositionally different conductive material, wherein the compositionally different conductive material is selected from the group consisting of an organic conductor, an organic complex, an inorganic conductor, and a mixed inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a highly doped semi-conductor, or a superconductor, or a combination thereof,

the sensors constructed to provide a first response when contacted with a first chemical analyte, and a second different response when contacted with a second different chemical analyte.

94. The sensor of claim 1, wherein the conductive organic material is an emeraldine salt of polyaniline and the compositionally different material is carbon black.

95. The sensor of claim 1, wherein the conductive organic material is a doped polyaniline and the compositionally different material is carbon black.

96. A sensor array comprising:

a plurality of sensors wherein at least one sensor comprises regions of a conductive organic material and a compositionally different particulate material.

97. A sensor array according to claim 4, further comprising:

a measuring apparatus in communication with at least one sensor of the plurality of sensors.--